Element Materials Technology - Daleville
9301 Innovation Drive
Daleville, IN 47334
TEL: (765) 378-4103 FAX: (765) 378-4109
Website: www.element.com

April 03, 2019

Nickie Geros
East Chicago Sanitary District
5201 Indianapolis Blvd
East Chicago, IN 46312
TEL: 219-391-8466
FAX:

RE: R-901 Order No.: 19032792

Dear Nickie Geros:

Element Materials Technology - Daleville received 2 sample(s) on 3/27/2019 for the analyses presented in the following report.

In accordance with your instructions, Element Materials Technology Indiana conducted the analysis shown on the following pages on samples submitted by your company. The results relate only to the items tested. Unless otherwise noted, all analysis was conducted using approved methodologies from EPA, SM, or other client-specified methods. All relevant sampling information is on the attached chain-of-custody form. The initials SUB as the analyst designate any testing sub-contracted by Element Materials Technology Indiana.

This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Serena Shane

Serena Shane
Project Manager
9301 Innovation Drive
Daleville, IN 47334

Element Materials Technology - Daleville
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Daleville, IN 47334
TEL: (765) 378-4103 FAX: (765) 378-4109
Website: www.element.com

Analytical Report

(wastewater)

WO#: **19032792**

Date Reported: **4/3/2019**

CLIENT: East Chicago Sanitary District
Collection Date: 3/26/2019 9:10:00 AM
Project: R-901
Lab ID: 19032792-001
Matrix: WASTEWATER
Client Sample ID #901
Sample Location:

Analyses	Result	RL	Qual	Units	DF	PL	Date Analyzed
OIL AND GREASE, TOTAL					**E1664**		Analyst: **CRT**
Oil & Grease, Total	118	5.0	*	mg/L	1	50.0	3/27/2019 5:45:00 PM
OIL AND GREASE, NON POLAR					**E1664**		Analyst: **CRT**
Oil & Grease, Petroleum	100	5.0	*	mg/L	1	50.0	3/30/2019 2:00:00 PM
SV COMPOUNDS FOR CATEGORICAL RQTS					**E625**		Analyst: **GB**
Bis(2-ethylhexyl)phthalate	< 0.100	0.100		mg/L	10	0.158	3/30/2019 5:36:00 PM
Carbazole	< 0.100	0.100		mg/L	10		3/30/2019 5:36:00 PM
Fluoranthene	< 0.050	0.050		mg/L	10	0.393	3/30/2019 5:36:00 PM
n-Decane	< 0.100	0.100		mg/L	10		3/30/2019 5:36:00 PM
n-Octadecane	< 0.100	0.100		mg/L	10		3/30/2019 5:36:00 PM
SEMI-VOLATILES IN WW					**E625**		Analyst: **GB**
Phenanthrene	< 0.100	0.100		mg/L	10		3/30/2019 5:36:00 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
PQL	Practical Quantitation Limit	RL	Reporting Detection Limit

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Analytical Report

(wastewater)

WO#: **19032792**

Date Reported: **4/3/2019**

CLIENT: East Chicago Sanitary District
Project: R-901
Lab ID: 19032792-002
Client Sample ID #901
Sample Location:

Collection Date: 3/26/2019 9:10:00 AM
Matrix: WASTEWATER

Analyses	Result	RL	Qual	Units	DF	PL	Date Analyzed
FLUORIDE				**E300.0**			Analyst: **SKW**
Fluoride	2.1	0.1		mg/L	1	2.9	3/28/2019 3:57:00 PM
CHEMICAL OXYGEN DEMAND				**M5220 D**			Analyst: **DDE**
Chemical Oxygen Demand	1,290	100		mg/L	10		3/29/2019 10:55:00 AM
AMMONIA AS N				**E350.1**			Analyst: **CRT**
Nitrogen, Ammonia (As N)	59.0	1.00		mg/L	10	77.0	3/28/2019 12:20:00 PM
PHENOLICS IN WASTEWATER				**E420.1**			Analyst: **MNK**
Phenolics, Total Recoverable	0.114	0.050		mg/L	2	0.700	3/30/2019 3:28:02 PM
TOTAL PHOSPHORUS				**M4500-P F**			Analyst: **AN**
Total Phosphorus	1.20	0.050		mg/L	1	5.50	3/28/2019 10:15:00 AM
TOTAL SUSPENDED SOLIDS				**M2540 D**			Analyst: **DDE**
Suspended Solids (Residue, Non-Filterable)	245	69		mg/L	1		3/28/2019 1:01:00 PM
MERCURY				**E245.1**			Analyst: **FJR**
Mercury	0.00041	0.00010	*	mg/L	1	0.00020	3/29/2019
METALS IN WATER BY ICP-MS, TOTALS				**E200.8**			Analyst: **FJR**
Arsenic	0.00801	0.00020		mg/L	1	0.500	3/29/2019
Chromium	0.00325	0.00040		mg/L	1	0.282	3/29/2019
Cobalt	0.00429	0.00010		mg/L	1		3/29/2019

Qualifiers:

*	Value exceeds Maximum Contaminant Level	H	Holding times for preparation or analysis exceeded
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Analytical Report

(wastewater)

WO#: **19032792**

Date Reported: **4/3/2019**

CLIENT: East Chicago Sanitary District
Project: R-901
Lab ID: 19032792-002
Client Sample ID #901
Sample Location:

Collection Date: 3/26/2019 9:10:00 AM
Matrix: WASTEWATER

Analyses	Result	RL	Qual	Units	DF	PL	Date Analyzed
METALS IN WATER BY ICP-MS, TOTALS				**E200.8**			Analyst: **FJR**
Copper	0.00841	0.00020		mg/L	1	0.301	3/29/2019
Lead	0.00125	0.00020		mg/L	1	0.224	3/29/2019
Molybdenum	0.0786	0.00020		mg/L	1	0.200	3/29/2019
Nickel	0.0138	0.00100		mg/L	1	0.390	3/29/2019
Tin	< 0.00500	0.00500		mg/L	1		3/29/2019
Zinc	0.156	0.00400		mg/L	10	1.48	3/29/2019

Qualifiers:

*	Value exceeds Maximum Contaminant Level	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
PQL	Practical Quantitation Limit	RL	Reporting Detection Limit

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-88199-1
Client Project/Site: Cyanide

For:
Element Materials Technology
328 Ley Rd
Suite100
Fort Wayne, Indiana 46825

Attn: Katie Hernandez

Authorized for release by:
4/4/2019 3:53:41 PM
Jennifer Rumble, Project Manager I
(412)963-7058
jennifer.rumble@testamericainc.com

Designee for

Julie Unger, Project Management Assistant I
(412)963-7058
julie.unger@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-88199-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-88199-1

Receipt
The sample was received on 3/28/2019 8:15 AM; the sample arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.4º C.

Receipt Exceptions
The Field Sampler was not listed on the Chain of Custody.

General Chemistry
Method OIA-1677: 19032792-001A (180-88199-1) was diluted to bring the concentration of target analytes within the calibration range. Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Element Materials Technology
Project/Site: Cyanide

Job ID: 180-88199-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Element Materials Technology
Job ID: 180-88199-1
Project/Site: Cyanide

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Element Materials Technology
Project/Site: Cyanide

Job ID: 180-88199-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-88199-1	19032792-001A	Water	03/26/19 09:10	03/28/19 08:15

Method Summary

Client: Element Materials Technology
Project/Site: Cyanide

Job ID: 180-88199-1

Method	Method Description	Protocol	Laboratory
OIA - 1677	Available Cyanide by Flow Injection, Lig	EPA	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Element Materials Technology
Project/Site: Cyanide

Job ID: 180-88199-1

Client Sample ID: 19032792-001A
Date Collected: 03/26/19 09:10
Date Received: 03/28/19 08:15

Lab Sample ID: 180-88199-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OIA - 1677		10			274835	04/03/19 10:21	CAK	TAL PIT
	Instrument ID: ALPKEM2									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Analysis

CAK = Chuck Kieda

Client Sample Results

Client: Element Materials Technology
Project/Site: Cyanide

Job ID: 180-88199-1

Client Sample ID: 19032792-001A
Date Collected: 03/26/19 09:10
Date Received: 03/28/19 08:15

Lab Sample ID: 180-88199-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Available	0.46		0.020	0.0036	mg/L			04/03/19 10:21	10

Client: Element Materials Technology
Project/Site: Cyanide

Job ID: 180-88199-1

Method: OIA - 1677 - Available Cyanide by Flow Injection, Lig

Lab Sample ID: MB 180-274835/67
Matrix: Water
Analysis Batch: 274835

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Available	ND		0.0020	0.00036	mg/L			04/03/19 10:11	1

Lab Sample ID: LCS 180-274835/66
Matrix: Water
Analysis Batch: 274835

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Available			0.0501	0.0457		mg/L		91	82 - 132		

QC Association Summary

Client: Element Materials Technology
Project/Site: Cyanide

Job ID: 180-88199-1

General Chemistry

Analysis Batch: 274835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88199-1	19032792-001A	Total/NA	Water	OIA - 1677	
MB 180-274835/67	Method Blank	Total/NA	Water	OIA - 1677	
LCS 180-274835/66	Lab Control Sample	Total/NA	Water	OIA - 1677	

element

CHAIN OF CUSTODY RECORD

Omega COCID 119222 | PAGE: 1 | OF: 1

ADDRESS
Element Materials Technology - Fort Wayne
328 Ley Rd.
Fort Wayne, IN 46825
TEL: (260) 424-1622
FAX: (260) 424-9124
Website: www.element.com

SUB CONTRATOR: TEST_AMERICA COMPANY: Test America

ADDRESS: Sample Receiving

CITY, STATE, ZI: 301 Alpha Drive Pittsburgh PA 15238

PHONE: (800

ACCOUNT #:

SPECIAL INSTRUCTIONS / COMMENTS: Due: 4.2.19

PO# EFWD30553

ITEM #	SAMPLE ID	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	COMMENTS: Methanol Preserved Weights HOT Sample Notation, Additional Sample Description
1	19032792-001A	R-901 Grab	500HDPENAOH	Wastewater	3/26/2019 9:10:00 AM	1	
	CYAN ~~FREE~~ Available						

180-88199 Chain of Custody

	Date	Time		Date	Time
Relinquished By: Pressure Transfer	3/27/2019	3:21 PM	Received By:	3/28/19	0815
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

Note: RUSH requests will incur surcharges!

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples 2.4 °C Attempt to Cool ? Y

Comments:

7748 1496 5078

Login Sample Receipt Checklist

Client: Element Materials Technology

Job Number: 180-88199-1

Login Number: 88199
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

element W172 012 Chain of Custody M76

Laboratory Number: 19032792

Page 1 of 1

Client Information:		Billing Information:		PO Number:	Project Name/Number: R-901
Company Name:	East Chicago Sanitary District	Same			
Contact Name:	Nickie Geros			Quote Number:	Sampler's Signature
Address:	5201 Indianapolis Blvd				
				Required QC Level	
City, State Zip:	East Chicago IN 46312				
Phone Number:	219-391-8466 Ext. 240		Ext:	Bill Monthly ☐Yes ☐No	Shipping Method: UPS / FedEx / Airborne DHL / Element / Hand / Mail
Fax Number:					
E-mail Address:	ngeros@eastchicago.com				

Matrix Code
DW = Drinking Water
WW = Waste Water
GW = Ground Water
AQ = Aqueous
OT = Other
SL = Sludge SOL = Solid
O = Oil SO = Soil
F = Food SW = Swab
NG = Natural Gas
NGL = Natural Gas Liquid
PW = Produced Water
CF = Completion Fluid

Which Regulations Apply:
☐RCRA ☐Drinking Water
☐POTW ☐Distribution
☐NPDES ☐Special
☐USDA/FDA ☐State
☐RECAP/RISC ☐Other

Turn Time
5 TAT
(Rush turn times will incur a surcharge and must be pre-approved by lab.)

Sample ID/Description	Collection Information: Date	Time	Grab / Composite	Matrix	Container: Quantity	Container: Type P=Plastic, G=Glass, V=Vial	Pres.: HCl, HNO_3, H_2SO_4, NaOH, $Na_2S_2O_3$	CYANIDE 1677	Oil & Grease T&SI	**SVOC list		*Metals	NH3, T.PHOS, COD	PHENOL	300:FI,	TSS	
R-901 Grab	3-26-19	910	Grab	WW	1		NAOH	X									
R-901 Grab			Grab	WW	1	G	H2SO4		X								
R-901 Grab			Grab	WW	2	G	NONE			X							
R-901 Composite			Comp	WW	1	P	HNO3					X					
R-901 Composite			Comp	WW	1	P	H2SO4						X				
R-901 Composite			Comp	WW	1	G	H2SO4							X			
R-901 Composite			Comp	WW	~~1~~ 2	P	NONE								X	X	

Comments
Samples Meet Acceptance Policy
Yes No

*As, Cr, Cu, Pb, Mo, Ni, Zn, & Hg, Co, Sn,

**Carbazole, n-Decane, Fluoranthene, n-Octedecane, Phenanthrene, Bis(2EH) Phthalate

KLH 3/30/19

	Relinquished by	Date/Time	Received by	Date/Time
1	W. Luther	3.27.19 / 9:50AM	Yvette Fernandez	3-27-19 0950
2		3-27-19 / 1400		3/27/19 1400
3				

Composite Sampler:
Start Date/Time: 3-26-19 910
End Date/Time: 3-27-19 812

Received at lab on ice?
☒Yes ☐No Temp: 4.8 C

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31, Columbus, IN 47201 USA, P 812-375-0531, F 812-375-0731
328 Ley Road, Suite 100, Fort Wayne, IN 46825 USA, P 260-471-7000, F 260-471-7777
909 Executive Dr., Warsaw, IN 46580 USA, P 574-267-3305, F 574-269-6569
3371 Cleveland Road, Suite 100A, South Bend, IN 46628-9780 USA, P 574-277-0707
2417 W. Pinhook Rd, Lafayette, LA 70508-3344 USA, P 337-235-0483, F 337-233-6540